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No. 12

# Our Foreign Market For Grapefruit\*

*Grapefruit industry & trade*

By C. E. Luebben, Citrus Trade Commissioner, U.S. Bureau of Foreign and Domestic Commerce

Florida must market in the very near future an annual crop of thirty million boxes of oranges and grapefruit. Twenty million mature trees cannot well produce less.

Florida has been able to market sixteen million without over-supplying developed demand. Crops larger than this invariably resulted in heavy losses to the industry.

Where can this fourteen million new supply go, in the face of increasing crops in California, Texas, Brazil, and South Africa? That's your problem; and my place in the picture to help out across the seas.

Thank goodness the world is turning to fruit, and the per capita consumption should increase some at home and materially abroad where heavy meat diets are just beginning to feel the Eat-More-Fruit onslaught.

In the few minutes at my disposal, I shall endeavor to touch briefly on the high spots of the problem confronting both the buyer and the seller—and gentlemen, let us not forget the buyer comes first—the day of sharp corners is gone and in its place orderly marketing of honest products has appeared, and any hopes Europe can be used as a dumping ground—well, they're groundless and dangerous.

On the buyers' side, I find that England and the Continent can be developed into splendid customers from

January to August, and that neither bear any prejudice as to brands or source of origin.

Barring the last half of December, when all markets are glutted with luxuries from all corners of the earth, a large volume, uniformly spread over the first eight months of the year, can be profitably marketed.

All export markets are at present in the making; all of open mind—other than that one human weakness, "the lust of the eye," which always concedes a premium to the beautiful. With no knowledge of grapefruit, the buyer picks brights; and Florida's delicious meated russets must find their rightful place in the buyers' estimation through the development right now of some such slogan, "If It's a Russet, It's Ripe," backed by an advertising campaign launched early in January. In another year, other national competitive campaigns will have so molded public opinion to choose by beauty (their only asset) that one dollar will accomplish this season a demand for russet that could not be duplicated for five dollars next.

With the splendid quality of June Bloom fruit available for export after New Years, clever advertising may be relied on to develop a demand by the fall of 1930 that should prove a veritable salvation to the industry.

Now for the sellers' side: All efforts to develop a permanent export

outlet will prove futile unless backed by sound fruit delivered with orderly regularity through the spring and summer months.

Mr. Hyde tells me sterilizing experiments now well developed by the U. S. Department of Agriculture at Orlando, have opened up new realms in the storage possibilities of fruit over long periods, and that grapefruit can be safely assembled in field crates, under refrigeration, during March and April, for packing and shipping from May to August, with the certainty of sound arrival.

Orderly delivery can be controlled only by orderly movement through the ports of Jacksonville and Tampa,—not by storage on the other side.

The foreign buyer considers purchases of fruits, ex the ship, as fresh supplies, and purchases, ex cold storage, as held supplies and subject to penalty.

Owing to high taxes, cold storage rates abroad are double those prevailing in Florida, or approximately 24 cents a month per box, as against 12 cents locally. The combination of this additional 12 cents penalty for one to four months' storage, plus the psychological penalty assessed for storage occupancy abroad, prohibits protecting distribution except through local storage. Such storage offers a further protection to the grower in that up to time of sailing he can take advantage of domestic demand when

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\*Talk made at Rotary Club meeting in Jacksonville, December 3.

# Insect Pest Control Extended During 1929

Progress in both control of and research work on the major insect pests prevalent in the United States is indicated in the annual report of Dr. C. L. Marlatt, Chief of the Bureau of Entomology, U. S. Department of Agriculture.

The discovery of the Mediterranean fruit fly in Florida had far-reaching commercial and economic effects. Every possible resource of the bureau and its Hawaiian and Mexican laboratories was mustered for its prompt control. An exceedingly efficient spray formula was developed for eradication work. A number of highly attractive materials for traps were discovered. A study was made in an area of 300 square miles of all wild fruiting plants which might be possible hosts for the fly. A calendar for all known cultivated host plants was worked out, showing the periods throughout the year in which these host plants are in fruit in the three districts in the State liable to infestation. This helps to determine the relative hazard in cultivating any of these plants in territory likely to harbor the fly. Studies in the handling of the fruit under storage and transportation conditions are being made and many other aspects of the problem of control are being investigated.

Studies on the codling moth have related especially to the spray-residue problem. Extensive tests were carried out in orchards with various materials to determine their value for codling moth control and as possible substitutes for lead arsenate. Cuprous cyanide, cryolite, and the fluosilicates of barium and potassium were among the most effective materials tried.

Damage by the Japanese beetle in the heavily infested district was as severe as in previous years and somewhat more widespread. A spray that is useful in controlling large numbers of the Japanese beetle was developed. It is a combination of lead arsenate and highly refined sugar sirup. A more efficient type of Japanese beetle trap was designed. It was found possible to treat soil with lead arsenate to prevent beetle development without injury to a large number of varieties of evergreens, deciduous trees and shrubs, and other nursery stock. Some 337,000 parasites of the Japanese beetle were received

from India and Japan and five or six species have become well-established.

Commercial damage to the corn crop resulting from the work of the European corn borer remains small or almost negligible, although this pest has continued to spread in the Great Lakes area at about the usual rate. In Ohio and Indiana this movement was apparently less extensive in 1928 than in the previous year. More than a million additional parasites, comprising nine species, were liberated.

The alfalfa weevil continues slowly to spread toward the Mississippi Basin and is now firmly established in western Nebraska. It seems inevitable that this pest will eventually make its way into all the principal alfalfa-growing regions of the West.

It was found that the lethal effect of the combination of certain gases upon insects attacking grain and stored products is far greater than the effect of either one used alone. For treating foodstuffs, ethylene oxide, a new fumigant developed by the Bureau of Entomology and the Bureau of Chemistry and Soils has proved to be the best and safest gas now available. It is non-injurious to foodstuffs, leaves no odor or poisonous residue, and is very effective in killing insects.

The addition to the territory occupied by the Mexican bean beetle occurring in the season of 1928 is probably of more importance than that of any previous year since the discovery of this insect in the eastern part of the United States. The beetle is now known to occur along the Atlantic seaboard from northern North Carolina to northern New Jersey. Six counties in southern New York have become invaded and two in Michigan. Increased interest on the part of growers has led to wider use of control measures than ever before.

The boll weevil continues to occupy an important position among pests of cotton, although the year shows no unusual outbreaks. The western pine beetle has continued to cause severe damage in southern Oregon and northern California. Control operations have been carried on on a large scale in cooperation with the Forest Service, the Office of Indian Affairs, and private logging operators.

The gipsy moth and the brown tail moth investigations have included

considerable work with parasites from Hungary, Yugoslavia, Austria, Czechoslovakia, and Poland. Many other insect pests of economic and local importance have engaged the attention of the bureau's scientific staff.

While most of the divisions of the bureau have to do with the suppression of pests, the work of the bee culture laboratory and its branches in Wyoming and Louisiana is directed toward the encouragement of an industry of growing importance. Studies are being made to determine the physical differences between different races and varieties of honeybees; on the reaction of honeybees to light; on the factors affecting their longevity; their diseases; the cost of honey production and apiary management; and analyses of honey offered for export.

The work of the taxonomic division of the bureau, which is engaged in the identification and classification of insects, has gone forward much as in past years. The Insect Pest Survey now in its ninth year, continues to reflect insect conditions over large areas in this country and in Canada, for the benefit of entomologists endeavoring to control them.

## WEIRSDALE PACKING CO.

### ADDS PRECOOLING PLANT

The Weirsdale Packing Co., E. B. Lytle president, at Weirsdale in Marion County, is adding one of the most modern and complete precooling and refrigerating plants in the state to what already was one of the most efficient citrus packing houses.

The new precooling and refrigerating plant occupies a building all its own along the railroad track south of the main packing house building with which it connects. The new plant will have capacity to handle ten precooling or refrigerating rooms, each calculated to handle one and one-half carloads daily at ordinary precooling temperatures.

The Weirsdale Packing Co. serves the foremost citrus growers of that section of Marion County and the adjacent portion of Lake County. Under the capable management of Doctor Lytle it has over a period of years established an enviable reputation for the large tonnage of excellent oranges and grapefruit which it sends to market.

# Arizonian Subsoils Thrice; Then Blasts Holes Be- fore Planting

California Citrograph

A preliminary expenditure of 75 cents a tree in preparation of the soil to receive young grapefruit and navel orange trees, is money well used, according to an article in the Arizona Producer of recent date. The Arizona paper quotes C. A. Divine, foreman on the place of Mrs. George D. Webster in the Arcadia district northeast of Phoenix as asserting that the growth shown by some young grapefruit stock on Mrs. Webster's place prove that the cost of triple sub-soiling, that of dynamite for blasting out the holes, the extra fertilizer required and for the labor necessary to give the young trees just the soil conditions they need for rapid and sturdy growth, is more than justified.

Following is taken from the Producer:

"Because of the added care and cash expended in planting the Webster grove, it is being watched with keen interest by citrus growers of the entire valley. There is no question that the trees are thriving but Mr. Divine and his assistant, Chester Hamby, say that the roots have not yet had an opportunity to take full advantage of the fertilizer and the rich top soil that was provided for their use. They expect the real results about next spring.

"There was nothing extraordinary about the trees themselves. They were just ordinary good stock, about 80 per cent of them Marsh grapefruit and the rest navels. However, most of the Marshes were budded with Bumstead buds. The unique feature of the Webster grove is the manner in which it was planted.

## Three Subsoilings

"Preparations began last year, when the ground was subsoiled twice. This last winter the location for each tree was spotted by a surveyor. Then there was another subsoiling.

"The next step was to drive a steel rod down into the soil a full 60 inches, right where each tree was to go. Three sticks of dynamite were inserted in this hole, and exploded. That made a young shell crater.

"A man with a shovel then cleared the hole to a depth of 40 inches

and to a diameter of 30. The dirt that he dug out was thrown to one side, to be scattered around promiscuously; it was never returned to the hole.

"The a furrow was run down each tree row and the water turned in. This floated topsoil into the holes until they were filled within 14 inches of the surface.

"Upon the topsoil was thrown fertilizer—50 pounds of cow manure to the hole, or 25 pounds of chicken yard droppings. The chicken manure is supposed to be the richest, but if so, the trees do not yet show it. There is not a particle of difference in the appearance of those fertilized with the two substances.

"Water was again turned into the holes for the double purpose of leaching and settling the manure, and of carrying in enough topsoil to fill them level with the surface. After that, a small excavation was made just large enough to receive the balled tree, and planting proceeded in the usual manner.

## The Added Cost

"Three sticks of dynamite, cap and fuse cost 18 cents. A contractor blew out the holes and dug them for 25 cents apiece. Mr. Divine estimates that 25 cents a hole is a fair charge for the fertilizer, including its hauling. Steer manure was purchased for \$3.50 a ton delivered on the ranch, but the chicken manure had been accumulated from the Webster poultry yard. Possibly there was an irrigation or two that could be charged as extra expense, but Divine does not think the total is more than 75 cents a tree in addition to what would have been paid out for setting the trees in the ordinary way.

"If it cost a dollar extra, it was worth it," declares Mr. Divine. 'Just look at those trees if you don't believe it. They were without water 20 days in June, too, while the pump that serves this ranch was being overhauled. That gave them a setback but they were in a position to stand it, and now they're shooting right ahead.

"We did everything that we could think of to start these trees right and

I just know it's going to pay in increased growth and production.'

"And nobody has been found who will disagree with him. He has shown the valley some new wrinkles in citrus planting, notably a method of putting topsoil down where the tree roots go. A number of growers have already announced their intention of adopting this method, with modifications to meet their own soil conditions."

## LITIGATION IMPORTANT TO FRUIT INTERESTS NOW IN PATENT OFFICE

Litigation of vital interest to the fruit industry is now pending in the Patent Office, Washington, D. C., regarding rights covering the use of a dilute solution of acids or alkalis in removal of spray residue from fruits and vegetables. The U. S. Department of Agriculture and a California firm, Brogden and Trowbridge, have each made application for the rights.

This process, which has been extremely useful in preparing fruit for market, has been in almost constant use in various fruit regions since 1925, and, according to claims of the Department of Agriculture, it was first conceived and put into practice by its employees. The Department of Agriculture, acting through Arthur M. Henry, chemist of the Philadelphia station of the Food, Drug, and Insecticide Administration, has applied for a patent on the process with the avowed intention that if the patent is granted to Mr. Henry it will be dedicated to the service of the public and may be used by anyone without royalty charges or other costs. The Henry patent application has been declared by the Patent Office to be in interference with the application of Brogden and Trowbridge.

The purpose of this litigation is to endeavor to establish the contention of the Department of Agriculture that Mr. Henry conceived the process and put it into operation before Messrs. Brogden and Trowbridge did.

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# Brazilian Orange Industry

Mr. W. G. McCreary, American Trade Commissioner, Sao Paulo, Brazil, has forwarded to the Department of Commerce an article on the Brazilian orange industry, taken from the September 1929 issue of the British Chamber of Commerce Bulletin of Sao Paulo, which reads:

"The Institute de Expensio Commercial, a department of the Ministry of Agriculture, has recently published very complete information regarding the orange growing industry in Brazil. The following details concerning the production of the production of the various states is taken from this report.

"Sao Paulo. There are 1,236,000 fully grown trees in this State, which yielded more than 350,000,000 oranges (pieces) in 1927, of which 7,602,000 (pieces) were exported. At the present time there are about 6,000,000 young trees, which should be yielding a minimum of 6,000,000 boxes within the next five years. Of this total, 2,000,000 trees are in the Sorocaba district, and 2,000,000 in that of Limeira, in which there are already 800,000 trees now bearing. The largest, most up-to-date, plantations are to be found in the districts of Limeira, Sorocaba, Taubate, and Cacapava. In 1928, exports from the Limeira district to Europe were 130,000 boxes, total exports from the State being 205,379 boxes. It is estimated that total exports from the State during 1929 will be 600,000 boxes.

"Law No. 2,356, of December 31, 1928, passed by the State Congress (Sao Paulo), established various measures to be put into practice in order to assist the export trade. A certain interest in the growing of oranges has been manifest by British capitalists, who have not only acquired land in the State but also have organized various companies for purchasing and exporting the fruit. Under the auspices of the Brazilian Rural Society, a Cooperative Society of Orange Growers has been formed in the State (Sao Paulo). A cooperative enterprise was also recently inaugurated in the municipality of Araras. This enterprise has extensive and excellent tracts of lands and orange plantations have already been started on the latest and most approved lines, and equipment installed for exporting the fruit on a large scale.

"The installation of packing houses at Limeira, Sorocaba and, later, in the northern districts of the State,

with a packing school annexed to that of Limeira, are factors which should offer the local (Sao Paulo) fruit growing district a solid basis on which to erect a vast program of activity. The State (Sao Paulo) government has acquired a tract of land in the Sorocaba district for the installation of a fruit-growing station. This will render service to fruit growers by supplying selected seedlings. Under recent service regulations, Government stations should distribute 300,000 citrus graftings and 2,000,000 cuttings annually.

"The picking of the crop in the State of Sao Paulo commences in April, the first shipment — of 692 boxes to Hamburg — being made on the 14th of that month in 1929.

"Statistics for the principal orange growing districts in the State (Sao Paulo) are:

Municipality	Number of trees	Production (boxes)
Limeira	800,000	500,000
Sorocaba	363,210	255,350
Cacapava	64,100	196,300
Other	389,700	505,451
Total	1,617,010	1,457,101

(Note: The above figures relate only to trees which are bearing fruit.)

"Rio de Janeiro. With the introduction of orange growing on a large scale, the value of lands in a considerable area of this State has notably increased. Plantations in the State are estimated to contain, 4,500,000 trees, yielding 9000,000,000 oranges. In 1928, exports from the State of Rio and the Federal District amounted to 432,738 boxes. It is one of the localities in Brazil where the organization of plantations gives the best results. The Normandia Agricultural Plantation Company, situated at Nova Iguassu, has recently installed a model packing house. The program of this company includes the planting of 1,000,000 trees.

"Bahia. Although orange growing is a traditional industry in this State, plantations have not attained the development to be observed in the States mentioned above. Orange plantations in Bahia occupy an area of 630 hectares, with a production of about 50,000,000 oranges (pieces). It exported 276,200 oranges (pieces) . . . in 1928 . . . Oranges are cultivated in all the municipalities of Bahia.

"Pernambuco. The largest orange plantations in this State (Pernambuco) are situated in the districts of Victorin, Amaragy . . . There are

about 15,000 trees, which produce 3,000,000 oranges (pieces) for local consumption.

"Maranhao. The area occupied by orange groves in this State is about 112 hectares, with 70,000 trees, and an annual yield of about 14,000,000 oranges (pieces).

"Espírito Santo. At the present time, there are 400,000 trees in this State. These are planted in an area of 640 hectares and yield an average of 70,000,000 oranges a year. These are consumed locally.

"Minas Geraes. Oranges are cultivated in 214 districts in this central State. The plantations, numbering 1,465,000 trees, yield 220,000,000 oranges annually. These are consumed locally.

"Matto Grosso. The annual production of this State is estimated at . . . 58,000,000 oranges (pieces), none of which is exported. Its 413,000 trees cover an area of more than 300 hectares . . .

"Parana. In spite of favorable conditions, orange growing has not yet been developed in this State. In the coastal districts of . . . conditions are very favorable. The fruit could be economically produced, while means of transport exist for a large exportation business. Among the groves which exist, the largest are to be found in the municipality of Serra Acima.

"The yield at Foz do Iguassu is prodigious, and it would not be surprising if large plantations were shortly formed in order that oranges be exported to Argentina via the River Parana.

"Rio Grande do Sul. The oranges of this State have been known in the River Plate markets for the past twenty years. It is estimated that there are more than 1,000,000 trees, producing 200,000,000 oranges (pieces). Exports in 1928 were 889,000,000 oranges (pieces) . . . These went to Argentina. In June 1929, 500 boxes were shipped to London and 100 to France, thus initiating exportation to Europe. The State government has just started a fruit growing station at Monte Negro.

The following table gives the approximate number of orange trees in Brazil:

State	Number of trees
Sao Paula	7,236,000
Rio de Janeiro	4,500,000
Bahia	400,000
Pernambuco	15,000

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# IMPRESSIONS

By The Impressionist

From a California publication we learn that on September 14 all the fruit from a large Valencia grove near Fullerton, belonging to A. W. Smith, a banker at that place, was stolen by a large crew operating in broad daylight. This occurrence confirms our long standing impression concerning the enterprise of Californians. Even fruit thieves there seem to do big things in big way.

Speaking of Californians, we recently had a visit from W. H. Volck, the man for whom Volck spray is named, who in company with O. R. Blois the Florida representative of his organization, has been journeying about looking the Florida citrus belt over. The decision of the California Spray Chemical Company to establish an eastern factory impresses us as evidence of faith in Florida's citrus production.

Still anent Californians, since the foregoing was written have had the pleasure of lunching with Chas. J. Booth, of Ontario, California, Dean of the Junior College of Agriculture at that place. The school operates an 18 acre orange property and the Dean is himself a citrus grower in a small way. Gossiping with him we remark on the advantage which we believe California possesses in that most of its citrus is produced within a relatively small area. That brought him to express belief that one of the outstanding reasons for the success of the California Fruit Growers Exchange has lain in the custom over a long period of years of holding a full meeting of the board of directors every Wednesday in the general offices at Los Angeles. At these weekly meetings the sub-exchange managers are present as invited auditors, and are then free to get together for informational meetings of their own. These weekly meetings with a practically full attendance of directors are possible largely because of the relatively short distance which individual directors are required to travel in order to attend. Our own cooperative, the Florida Citrus Exchange, finds it practical to hold only four quarterly meetings a year of the full board of directors.

Wisecrack in a northern newspaper concerning alleged telegram sent to a nonresident Florida landowner: "Come at once, land discovered on your lot."

Very refreshing to note the large space and pictorial play-up in Chicago newspapers of the great lake storm which was estimated to have done three millions of dollars damage along the Chicago water front. Evidently the existing Florida impression that such attention generally is reserved for Florida disasters has been due either to our being too thin-skinned or else uninformed concerning the manner in which the misfortunes of others also goes to make news for public consumption.

Recent announcement of Federal Farm Loan Board appointment to head its cooperative marketing division of A. W. McKay "from Florida" doesn't click with us. We recall Mr. McKay having handled some experiments here for the U. S. Department of Agriculture some years ago in connection with the carrying qualities of citrus fruits in transit. However, we, nor a number of others here with whom he then had contact, do not place Mr. McKay as a Florida man. Our impression is that this is a mistake.

Everybody feeling better. Pessimists still mightily discouraged, of course, but finding it harder to spread gloom about. That perhaps adds a bit to their discouragement. We'll admit to being a chronic optimist; but aren't developments to date this season justifying our optimism as earlier expressed?

There are two ways of looking at every occurrence; but the confirmed pessimist who invariably stands aghast and hollers "ruined again" has had too prominent a place in citrus councils recently to be to our liking. We resent gloomy individuals just in the proportion that they spread gloom, and thereby unfit others for meeting situations. The gloom artists naturally are unfit themselves, which is the fundamental reason for their being gloomy.

## FOREST SERVICE MAN IS IN FLORIDA MAKING ECONOMIC STUDY PINES

Dr. E. A. Ziegler of the Forest Service, United States Department of Agriculture, was in Gainesville recently in connection with a forestry study he is making for the department. He is conducting an economic study of southern pines, including cost of growing them and profits to be derived from them.

Dr. Ziegler is making the study for the Southern Forest Experiment Station, with headquarters at New Orleans. The territory of this station covers from east Texas to eastern Georgia. Dr. Ziegler is studying the economic aspects of forests on small farms and in large holdings. His investigation is concerned with lumber, naval stores, pulpwood, posts, and miscellaneous articles of forest origin.

While in Gainesville Dr. Ziegler was the guest of Prof. B. A. Tolbert, dean of men at the University of Florida, and he was in contact with staff members of the Florida Experiment Station and College of Agriculture.

Pound for pound, potatoes have about the same feeding value as ordinary silage.



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"Please Say You Saw It In The Citrus Industry"

# \$2.44 Returned for \$1 Spent for Fertilizer in Florida

For every dollar spent for fertilizer in Florida, growers receive in return nearly two and a half dollars in increased value of the crops grown.

This statement is based on estimates of 779 Florida growers who were personally interviewed for the National Fertilizer Association regarding their experiences, opinions, practices and results from the use of commercial plant food. Their answers developed the fact that nearly half of the total crop of citrus grown in Florida in 1927, for instance, was produced by fertilizer.

This means for citrus alone in Florida an increase in value of \$2 for each dollar spent for fertilizer, with even larger returns for money spent for fertilization of other crops grown in the state, averaging \$2.44 for all crops.

The added yield for citrus—39.8 per cent of the total yield—resulting from the use of commercial plant food has a money value of \$19,303,000, of which \$9,605,000 is returned over and above the cost of fertilizer, \$9,650,000 having been spent that year for this crop-producing commodity.

These facts, along with other valuable information regarding fertilizers and fertilizer practices in Florida and 32 other states, based on a recent survey conducted under the supervision of The National Fertilizer Association, were brought out in a paper presented by H. R. Smalley, director of Soil Improvement Work of the Association, before the annual meeting of the American Society of Agronomy in Chicago.

## Consumer Survey

Farmer all over the country — more than 48,000 in 35 states — were personally visited by representatives of fertilizer companies doing business in the states. This "Consumer Survey", as it is called, was made to obtain facts regarding fertilizer practices on American farms. Of the total number interviewed, 779 were Florida farmers.

The information developed was utilized in connection with data made available by the United States Department of Agriculture and shows the results indicated for citrus, nearly half of the total crop produced by 241,260 tons of fertilizer, with the estimated increase in the value of the citrus crop of nearly 200 per

cent for every dollar spent for commercial plant food.

For the corn crop in Florida, 40 per cent of the total crop was produced by fertilizer, the added value produced in this manner being \$2,962,000. Total tonnage of fertilizer used on corn in Florida in 1927 was 53,840 tons, bought by farmers at an estimated total cost of \$1,615,000, and resulting in an increase in the value of the crop of \$1.83 for every dollar spent for fertilizer.

On tomatoes the increase in value of the crop in Florida, for each dollar spent for fertilizer was estimated at \$3.09. The percentage of the total tomato crop produced by plant food is given at 45.2, which return is worth \$4,020,000, from the 34,230 tons of fertilizer used at a cost of \$1,301,000 to the Florida tomato growers.

On potatoes the increase in the crop, for which fertilizer was responsible, was 49.9 per cent, valued at \$3,317,000 from 27,540 tons of fertilizer costing \$1,102,000, with \$3.01 increase in the value of the crop for each dollar spent for fertilizer.

The percentage of the total yield produced by fertilizer for other crops is given at 37.8 per cent and the added value at \$8,900,000, with an increase of \$4.28 in the average value of the crops for each dollar spent for fertilizer. For other crops than citrus, corn, potatoes, and tomatoes, 60,510 tons of fertilizer were used, costing \$2,080,000.

Taking all crops considered, it was found that the percentage of the total crop produced by fertilizer in Florida was 40.5, with an added value of \$38,502,000 from the use of 417,380 tons costing \$15,748,000, and returning \$2.44 for each dollar spent for fertilizer.

## Farmer's Own Estimates Used

The foregoing figures and conclusions are based on Florida farmers' own estimates of the increase in yield obtained by the use of fertilizer, the percentage of acreages fertilized, the value of crops as reported by the United States Department of Agriculture, the approximate quantities of fertilizer used on certain crops, an estimate of the average price paid by farmers for fertilizer on cotton as shown by figures of the United States Department of Agri-

culture, and an estimate made by The National Fertilizer Association on the average price paid for fertilizer used on other crops.

## RESEARCH IN PLANT INDUSTRIES COVERS WIDE RANGE OF INTERESTS

Noteworthy contributions to the world's knowledge of plant life and to the enlargement and improvement of the plant resources of the United States by plant scientists, other research workers, and explorers of the U. S. Department of Agriculture, are described by Dr. W. A. Taylor, Chief of the Bureau of Plant Industry, in his annual report to the Secretary of Agriculture made public today.

The work of the bureau includes crop improvement by breeding and selection, the introduction of new crops, experiments in cultural methods, investigations in utilizing plants and their products, and diagnosis and control of plant diseases.

Establishment of date growing on a satisfactory commercial basis in the Southwest is an illustration of the possibility of bringing in new crops that do not compete with those already grown in this country. The bureau is constantly on the watch for promising crops which may be introduced, and is responsible for the presence of a large number of our staple crops.

Experiments in growing rubber plants in Florida are very encouraging, especially with the Hevea or Para rubber tree of Brazil. These plants have made rapid growth in Florida in the past two seasons, and many of the young trees have attained a height of 15 feet or more. No frost injury occurred last winter, which is an indication that this plant is more resistant to cold than was supposed.

An expedition to Asia for the purpose of procuring seed of blight-resistant chestnuts has met with marked success. Seeds of the forest type of Japanese chestnuts from all of the important chestnut regions of Japan have been successfully shipped to this country in considerable quantities, and the seedlings are now growing in nurseries near Washington.

An airplane expedition to the interior of the island of New Guinea

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# A Critical Survey of Our Grove Management \*

Stephen Chase

*Citrus Groves*

The citrus industry in Florida is rapidly approaching, if it has not already reached, a condition where the strictest economies must be observed in both production and marketing in order that it may survive as a profitable business operation.

We have found it necessary to combine in a collective effort to solve our marketing problem through the Clearing House which promises results if we will support it, as we must.

Changing conditions and rapidly increasing competition make it equally necessary that we cast a critical eye on our grove practices to see if we are still pursuing antiquated, expensive methods that can be eliminated or changed to save us good dollars while still maintaining our quantity and quality production.

This is an individual problem that each must solve for himself according to his particular conditions and abilities, but there can be a measure of cooperation and mutual help through discussion and an exchange of views. So I ask your interest in discussing a few of our most important grove practices.

I propose to analyse these practices in the light of present-day knowledge and good common sense and to try to point a way toward a saving of from 25% to 50% in your operating costs.

Therefore, as all good executives do when a crisis is in sight, let us get together in a cold-blooded, critical attitude and see what means there are to save the situation.

From 30% to 40% of our grove costs are absorbed in feeding our trees, so here is a fertile field in which to begin.

Do you use a balanced fertilizer?

What is a balanced fertilizer for citrus?

I once asked these questions of an influential man in the citrus industry and he replied, a

4-8-6 in the spring,  
3-8-8 in the summer, and  
3-8-10 in the fall.

That probably reflects the general ideas on this score, so we will accept it for purposes of discussion.

Let us assume, also, as a unit in this discussion a 15 to 18 year old

## EDITORIAL NOTE

Probably no paper read at the last meeting of the Florida State Horticultural Society attracted more interest or provoked more discussion than that of Mr. Stephen Chase on the subject of grove management. Many of the suggestions of Mr. Chase are revolutionary. Most of them are radically opposed to the generally accepted grove practice. They are for the most part in conflict with the popular theory of grove management. It was to be expected, therefore, that the paper would create interest and provoke discussion. Indeed, discussion and investigation appear to have been among the main objects which Mr. Chase had in mind in presenting his paper. It is improbable that many growers will be willing to abandon generally accepted practices for the more or less revolutionary practices suggested by Mr. Chase without careful investigation and probably some preliminary experimentation. That, however, appears to be the primary purpose of Mr. Chase's paper—to foster experiments by individuals, industrial organizations and the state, to the end that these experiments may demonstrate the BEST grove practices for the citrus grower. He tells what he has done and wants others to tell what they have done. When such individual experiments on the part of growers become general and their results become known through public discussion, there can be no doubt that the industry will be benefitted.—The Editor.

grapefruit tree having a potential capacity of, say, 10 boxes which we are going to feed and care for during the year.

I think you will agree that an ample application to this unit tree of ours would be

25 lbs. 4-8-6 in the spring,  
20 lbs. 3-8-8 in the summer,  
25 lbs. 3-8-10 in the fall;  
70 lbs. Total

This would contain:

	Ammonia (NH <sub>3</sub> )	Phosphoric Acid (P <sub>2</sub> O <sub>5</sub> )	Potash (K <sub>2</sub> O)
Content actual plant food	2.35 lbs.	5.6 lbs.	5.6 lbs.
Loss by leaching	1.17 lbs.	None	1.68 lbs.
Remaining for tree use	1.18 lbs.	5.6 lbs.	3.92 lbs.
Ratio 3-14-10			

From an analysis of citrus fruits we find that, on the average, ten boxes of fruit produced on this unit tree of ours will actually remove 1.5 pounds of ammonia; .5 pounds of phosphoric acid and 2 pounds of potash,—a ratio of 3-1-4.

We have thus fed this tree 21% less ammonia than the crop will remove and have provided no excess for tree growth, while we have given it eleven times more phosphoric acid

and nearly twice as much potash as the crop will require. We have paid good money for this 5 pounds of phosphoric acid and nearly 2 pounds of potash in excess of crop needs. Is it money well spent?

In contrast, we have starved this tree in that element most necessary to all plants, particularly citrus, in large quantities, for their proper growth and fruit production. Is it any wonder that the citrus tree has to take a vacation every other year to recover and to store up enough energy to come back with a crop the next year?

But you will ask, what about providing for the growth of this tree? I regret to say that there is no data available—at least I am unable to find any—that gives us the amount of fertilizer elements required to grow a citrus tree but we may reason somewhat by analogy from the content of a 100 year old apple tree which has been found to contain 11.25 pounds of ammonia, 2.0 pounds of phosphoric acid and 8.2 pounds of potash. That represents about two bucketsfull of sulphate of ammonia, a hatfull of acid phosphate and less than a bucketfull of sulphate of potash divided into a hundred parts to supply each year's requirements of the apple tree for its growth. If this is any criterion to judge by, we need not be particularly disturbed about sufficient of these two elements for the growth of our citrus trees.

This apple tree content shows a ratio of 5.5-1-4, so it appears that the ratio of fruit content, 3-1-4, is the same except in the case of ammonia which is nearly twice as much in the tree as in the fruit.

We have to take into account, in this deep-sand Florida soil of ours, the leaching of some of the fertilizer elements we apply. This leaching varies year by year according to the varying seasons and rainfall and the nature of the fertilizer, but it has averaged approximately 50% of the applied ammonia, 30% of the applied potash and none of phosphoric acid. So, to provide the tree with its absolute requirements for fruit production, we must supply sufficient of these elements in excess of the tree needs to care for this loss. Our unit 10-box tree would accordingly need

Continued on page 17

(\*) An address made before the Florida State Horticultural Society, April 12, 1929.



# The Citrus Industry

with which is merged The Citrus Leaf  
Exclusive publication of the Citrus Growers and Shippers

Address all communications to the Main Office  
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## PROMOTING FOREIGN SHIPMENTS

The perennial dream of Florida citrus growers that European markets might be looked upon to absorb our surplus citrus crop, is about to be realized, in the view of Mr. G. E. Luebben, citrus trade commissioner of the U. S. department of commerce.

Mr. Luebben, who in company with W. N. Pearce, in charge of the Jacksonville branch of the department; M. L. Hyde, of the Strauchan Shipping Co., and John Arnold jr., of the Arnold Fruit Co., has been making a tour of Florida interviewing foreign shippers and prospective foreign shippers of citrus fruits, believes that the time is now ripe for Florida citrus growers to invade the European markets most effectively.

For the eight months from January to August inclusive, says Mr. Luebben, the European markets offer exceptional opportunities for the development of trade in Florida grapefruit. At other seasons of the year, the abundance of competitive fruits makes marketing unprofitable. But, during the eight months mentioned, says Mr. Luebben, medium fruit of good quality, and preferably russets, finds a ready sale at profitable prices. Some idea of the demand for Florida grapefruit in the London market may be had when it is known that with the poor quality of fruit shipped last season, some grapefruit from Florida sold as high as \$12.50 per box at auction. A good average is said to be about \$6 per box, which price would net the grower more than fruit of the same quality would bring in American markets.

Mr. Luebben says, and he is corroborated by both Mr. Hyde and Mr. Arnold, that there is no prejudice in Europe against russets; indeed, in many markets the demand is largely for russets, and he believes that there is a wonderful opportunity to develop through advertising a wonderful market for Florida russets in all European centers of consumption. He believes that arrangements should be made to handle distribution through established distributors, avoiding the auction markets and catering to the demand for small and medium sizes of good quality and pack. Fruit reaching European markets from South Africa is packed under government supervision, and not only shows much better keeping quality but also has a better appearance than the fruit which heretofore has gone to Europe from Florida. This condi-

tion must be remedied, he says, before we can hope to meet South African competition on an even footing, although the eating quality of our fruit is far superior to that of other fruit reaching the same markets.

Already an advertising campaign is being planned for the British trade, stressing the quality of russets, and it is hoped that an appropriation of from \$50,000 to \$60,000 may be available for expenditure at the beginning of the shipping season early in January. Such a fund, it is believed, would increase the British consumption by at least a million boxes in one season.

Mr. Luebben has outlined an impressive program of work in European markets, and while his first work has been confined to Holland and Germany, he expects to carry on his campaign in France and other European countries immediately upon his return to Europe next month. Florida shippers who have been in touch with his work are expecting much from his efforts.

## REGRETTABLE TATICS

It is to be seriously regretted that an effort is being made to inject politics into the fly eradication work being carried on by the state plant board under the direction of the federal department of agriculture. It is to be particularly regretted that this effort is being made by the chairman of the republican state central committee, whose position gives to his utterances an importance to which they are not entitled and implies an official backing which does not exist.

No one conversant with the work accomplished by the state plant board will be deceived by the charge that the board has been actuated by dishonest or selfish motives in its fight to eradicate the fly. No one acquainted with the personnel and the political affiliations of the men prominent in the work of eradication will for a moment accept the charge that these men were actuated by a desire to build up a "democratic machine" at the expense of the federal government.

The work of the state plant board has been carried on with the utmost degree of efficiency and integrity, and in the appointment of department heads and the employment of workers, the question of partisan politics has at no time entered. The attempt at this time to inject politics into the eradication campaign is clearly an effort to promote partisan ends for the benefit of the state chairman of a badly split minority party.

No one who at this time endeavors to discredit the work of the state plant board, and through it the federal department of agriculture, can be counted as a friend of Florida or of the citrus industry. Right now, the work of eradication needs the best efforts of every well wisher of the state, a title evidently to which the state chairman in question has no claim.

The best possible answer to such propaganda is to be found in the recommendation of President Hoover for an additional congressional appropriation of more than fifteen million dollars to continue to the work of eradication under the direction of the plant board.

# BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc.



Edited by The Growers Service Department

VOLUME 4.—NO. 1

ORLANDO, FLORIDA, DECEMBER, 1929

PAGE 1

## "BLUE GOOSE" MADE HIS FRUIT WORTH MUCH MORE

How the Blue Goose trademark operates to increase materially the market price of a grower's product, even when already well established in the favor of the trade, is shown by a letter written recently by one of the best known citrus growers. Copy of the letter as written to an interested outsider was furnished to the American Fruit Growers Inc.

After reciting how his grapefruit, which constituted the bulk of the product of a property of 250 acres, had first been sold under its own distinctive brand through another marketing organization and later through a New York commission house selling largely at auction, the writer told how he had been encouraged through the success of his brand to establish his own salesman in New York to handle shipments direct. Concerning this the writer says:

"My reflection led me to believe that as my fruit under my brand had been a top-notch for the New York auction for years and was so well known to the trade that it would largely sell itself.

"My instructions were—hustle our samples to the auction show room and get them lined up close as possible to the crack world leaders of grapefruit, Blue Goose-Deerfield and Blue Goose-Derby Winner. My samples were always displayed close to these famous Blue Goose lines in the auction sample room. The result justified my anticipations. My grapefruit held its lead over many brands at considerably less expense than formerly."

But that isn't the end of the story. The most interesting developments were yet to come, after more than a dozen years of experience with these various methods of selling. The letter continues:

"Then after months of these very successful selling operations the next epochal change came. My salesman commenced to write to me that many prominent buyers had asked him why we didn't get under the Blue Goose

## ODESSA GROWERS HOLD THEIR ANNUAL MEETING

The annual meeting of Odessa Lake Region Growers Inc. was held at Odessa on November 16. In the election of officers J. H. Dowling was chosen as president; R. B. Woolfolk first vice-president, W. H. Dowling second vice-president, C. D. Wing secretary and treasurer.

R. J. Flynn who has managed the affairs of the Odessa Lake Region organization since its beginnings was continued as manager for the ensuing year.

The change in the officers was brought about in the retirement of Clay Binnion as first vice-president, due to Mr. Binnion having disposed of the grove property which he had previously been operating in the vicinity of Odessa and his no longer having active producing interests in that section.

Odessa Lake Region Growers Inc. serves a number of the most prominent citrus growers in the southern part of Pasco and the northern section of Hillsborough counties who market their fruit through the American Fruit Growers Inc. It has been most successful in its field, and is contributing its part toward higher standards of packing and marketing of Florida citrus fruits.

trademark; that the quality of our fruit would warrant it. Also that they would pay from 35 cents to 75 cents more for it, as they could then use it to fill orders that they could not fill except with Blue Goose fruit.

"After repeatedly hearing from my auction man to this effect, I took the matter up with the Blue Goose people, telling them that altho I was highly successful as then operating, still as the trade kept telling us that they would pay considerably more for our fruit if under the Blue Goose trademark, I was ready to make a business arrangement if practicable.

"The arrangement was made, and altho it costs us a little more under

Continued on page 2

## CITRUS REVIEW AND MARKET OUTLOOK

By C. N. Williams, Salesmanager

To December 2 Florida had shipped 2,409 carloads of oranges as against 4,760 cars to the same date last season. Despite the slow beginning of Florida orange shipments this season, oranges recently have been moving in good volume, and with the opening of the southern states to Florida shipments generally have been taken well.

As this is written, toward the first of the month, demand is generally quickening and there is every indication of a good movement of oranges at satisfactory prices until the Holidays.

Recent revisions of the estimates on Northern California navels reduce that figure to 4,600 cars, as compared with approximately 7,000 cars last year. Groves there are reported picking out considerably below the earlier estimates. To November 30 only 670 cars of Northern California navels had moved, in comparison with about 3,000 cars to the same date last season.

Southern California navels have begun to move; but it is estimated that not more than eight or nine hundred cars will go out during December. During last season shipment of navels from the Southern California district amounted to approximately 2,400 cars in the month of December.

Curtailed California orange shipments recently have opened the way for the trade to turn to Florida oranges in the manner normal for the season of the year; and considerably to the advantage of the Florida product. The more recent reception of Florida oranges, all over the wider territory now open to their distribution, is a very encouraging factor.

As pointed out last month Florida grapefruit is admittedly in an excellent position. Texas competition, however, has made itself felt, particular in those territories West of

Continued on page 2

## BLUE GOOSE NEWS

OFFICIAL publication of the American Fruit Growers Inc., Growers Service Department, published the first of each month in the interest of the citrus growers of the state of Florida.

EDITORIAL ROOMS  
Sixth Floor, State Bank Bldg.  
ORLANDO, FLORIDA



### GROWER REPRESENTATION

As told earlier in the Blue Goose News, W. M. Scott, manager of the Florida Division of the American Fruit Growers Inc. spent the first two weeks of November at the national capital. While there he acted in capacity of special representative appointed by the Clearing House for contact with officials of the U. S. Department of Agriculture. His many years of experience previously during his long work with the department equipped him well for this task.

What has come about in the way of quarantine modifications since Mr. Scott went to Washington is now history. It is not to be thought that Mr. Scott alone and single-handed brought about these modifications. All that he really did was to contribute to the valuable work previously done at Washington by various Floridians, including the earlier committee from the Clearing House of which Mr. Scott was a member.

It may however, be worth mentioning that the opening of the entire country to tomatoes grown outside the eradication area, which opens the way for the profitable marketing of Florida's very valuable tomato crop, came as a direct result of Mr. Scott's personal representations. Again, not because it was W. M. Scott who asked it, but because he was on the ground when the subject arose in Washington and was thoroughly posted and thus able to present a strong case for Florida.

The real point of these remarks is

Adv.

not found in any particular trip, or participation in any particular gathering by a representative of the American Fruit Growers Inc. It is found in the fact that whenever and wherever the interests of the growers are at stake those growers who market through the American Fruit Growers Inc. have a voice. Further that voice is expressed through a competent representative, whose experience and whose representation of a great national organization like the American Fruit Growers Inc. commands respect and obtains consideration.

### "BLUE GOOSE" MADE HIS FRUIT WORTH MUCH MORE

Continued from page 1

the Blue Goose the net returns are very much increased as a result of Blue Goose prestige, and the consumers and trade demand for it. The grower gets the benefits of a large organization and long sustained advertising. It is certain that the Blue Goose trademark is a distinction, and a strong money-making one, to any grower who can step above the rut of mediocrity."

The signature to this letter is that of one of the leading producers of grapefruit, whose name is known in all those larger markets where quality is a consideration. His private brand for years has been one of the most distinguished upon the markets.

It is a most interesting letter. Because of its length it is not possible to reprint it here in full. However, any Florida grower who wishes to do so may read it here in these offices on any occasion when passing through Orlando.

### CITRUS REVIEW AND MARKET OUTLOOK

Continued from page 1

the Mississippi River. Up to December 2 Texas had shipped 1,266 carloads of grapefruit as compared with 369 cars shipped to the same date last year, and a total of 1,617 cars shipped from Texas all last season. Recent estimates place this season's Texas grapefruit crop at approximately 4,000 cars.

Only the average small sizes of Texas grapefruit have prevented the Rio Grande Valley product from offering a much more serious competition in Western territory than has been the case.

Extreme cold weather, of the sort which keeps housewives at home and curtails buying while simultaneously handicapping seriously the handling

and distribution of citrus fruits in the wholesale markets, already has played its part in complicating citrus marketing operations. This is unusual so early in the season, though something normally to be expected at intervals later on.

In spite of this, and in spite of other handicaps which earlier were the cause of much concern in many places, the average prices being obtained for this year's Florida citrus crop, both oranges and grapefruit, may be said to exceed the expectations of the general run of Florida growers.

While it is as yet too early to proclaim triumphantly the successful marketing of the Florida crop, events to date are a cause for confidence in that they have shown uniformly to Florida's advantage and tend to strengthen the position of Florida citrus growers. The increasing tone of confidence which is being manifest is in itself no small factor in bettering Florida's position in the citrus markets.

### THEY MAY LOOK ALIKE BUT TRADEMARK COUNTS

"They may look alike—but . . ." That was the heading of a full page advertisement in the Saturday Evening Post of November 30. The large illustration showed two oranges and a glass—and an electric light bulb. The opening text of the body of the advertisement continued:

"Buying oranges, people are learning to depend upon the brands. Experience has proved that this is the safe way. It is also the safe way when you are buying lamps."

It was an Edison Mazda Lamp advertisement.

This advertisement is significant in establishing the public recognition now accorded to brand or trademark advertising as affecting the sale of oranges, and along with oranges grapefruit naturally are included.

What a comparatively few years ago was most unusual has now become a habit with housewives and other fruit purchasers—to stipulate for fruit bearing a particular trademark in placing orders either by telephone or in person.

And it is the identification of each individual fruit by the trademark placed upon it which has made this possible. Previously the well intended effort to popularize certain trademarks was largely wasted, due to the fact that when the tissue wraps were removed at the time the fruit was



Fred Legg, President

Wm. I. Donnelly, Sec'y. &amp; Treas.

**THE LOGAN & KANAWHA COAL CO.**

Producers and shippers of

West Virginia, Harlan and Hazard Steam &amp; Domestic Coals

Pocahontas and New River Smokeless Coals

Cincinnati, O., November 1st, 1929.

West Frostproof Packing Company,  
Frostproof, Florida.

Attention Mr. J. E. Powell, Manager

Dear Mr. Powell:

We have your kind favor of the 31st and thank you most kindly for the efficient manner in which you handled our grapefruit at Frostproof.

We do not mind telling you that this is the most satisfactory return and the most efficient handling we have ever had on our fruit, and we are looking forward to working with you on additional fruit in the grove.

Thanking you for your letter, and awaiting your further advice with interest, we are,

Yours very truly,  
(Signed) Fred Legg.

placed on sale to consumers the identity of the fruit was lost.

Electrical trademarking of the individual fruit, now followed by all the principal marketing factors in all large citrus producing areas, paved the way for effective advertising and modern scientific merchandising of citrus fruits, to the lasting benefit of the entire industry.

It should not be immodest to point out that in electrical identification, as in other progressive measures, it was the American Fruit Growers Inc. which pioneered and perfected the practices which all now follow.

#### ORANGE JUICE IS TO BE OFFICIALLY DEFINED

Tentative definitions of fruit juice, grape juice, and orange juice were drawn up by the food standards committee of the U. S. Department of Agriculture at a recent meeting. Criticisms and suggestions regarding the proposed definitions and standards are invited from food officials, consumers, the trade, and all other interested parties. The definitions proposed are as follows:

Fruit juices are the clean, unfer-

mented juices obtained from the first pressing of sound, mature, fresh fruits, or of their pulp, and correspond in name to the fruit from which they are obtained.

Grape juice is the unfermented, expressed juice of clean, sound, mature grapes. It is made by a single pressing of the fruit, with or without the aid of heat, and with or without the removal of insoluble matter.

Orange juice is the clean, unfermented juice, with or without portions of the pulp, obtained from the sound, mature fruit of the orange, *Citrus sinensis*, (a) by reaming or burring the cut fruit, (b) by pressing the pulp after removal of the peel, or (c) by pressing the whole fruit with subsequent removal of oil derived from the peel.

Communication should be addressed to A. S. Mitchell, secretary food standards committee, Food, Drug, and Insecticide Administration, Washington, D. C., to reach him not later than February 1.

The subject is of interest to citrus growers in that when orange juice once has been given an official definition it will be illegal to offer for sale as orange juice any product

which does not fully conform to the definition.

#### \$200,000 OF INSURANCE BY AFG FLORIDA EMPLOYEES

Recapitulation of figures in the office of G. D. Wing, auditor of the Florida Division of the American Fruit Growers Inc. shows slightly upward of two hundred thousand dollars of AFG Group Insurance now in force among Florida employees of the organization.

This insurance is furnished to employees at a very low figure. Part of the cost is borne by the American Fruit Growers Inc. which is responsible for and pays a lump premium for the entire amount in force to a large insurance company, billing employee's portions to them on easy terms. The net cost of employees is far below that of commercial insurance.

Marel: That girl has a queenly brow; her mouth is that of a princess.

Cappy: Yeah, even her teeth are crowned.

—Witt.

Adv.

UNIFORMLY



THE BEST

IN all the country  
no other selling ser-  
vice affording to  
growers distribu-  
tion similarly wide-  
spread

American Fruit Growers Inc.

Orlando, Florida

DEPENDABLE



QUALITY

December, 1929

## A CRITICAL SURVEY OF OUR GROVE MANAGEMENT

Continued from page 11  
as a yearly application:

3 lbs. Ammonia,  
5 lbs. Phosphoric Acid,  
2.66 lbs. Potash;

which is a ratio of 6-1-6.

Now compare the ratio of our so-called balanced fertilizer: (4-8-8) with that of the actual food available to the tree, (3-14-10) and with the fruit content, (3-1-4) and the tree content in the apple, (5.5-1-4) and with the requirements after providing for leaching, (6-1-6) and where does our balanced fertilizer stand in rational grove management? What do you think about it? It seems to me absolutely in the discard. Balanced to what? Certainly not to the citrus trees. Balanced only, as far as I can see, to that mystic number 8 that has clung to our fertilizer formulae for the past 50 years. All games of chance seem to have their mystic numbers, like 7 and 11 in one popular game, but don't you think it about time we eliminate this number 8 from our game?

We don't feed ourselves, our mules or our dairy cattle a balanced ration mouthful by mouthful or meal by meal. Much less can we feed our citrus trees a balanced fertilizer each time we fertilize. Different moisture conditions season by season and year by year and different crop conditions require different treatments very widely varying. We feed, not pounds or percentages of fertilizers, but pounds of actual plant food which should vary in amounts and time according to the losses through leaching or rainfall, the crop on the trees and the time of year. So it is time we utterly abolish this boggy of a balanced fertilizer in our citrus business and get down to the fundamental necessities. Grant, then, these premises for further discussion toward a rational fertilizer program, looking to economy.

We know that parts of our fertilizer leach mainly during the summer rains. There is every indication that the citrus tree stores up nutrients during its dormant periods (particularly during the long winter dormancy) in preparation for the succeeding flush of growth. There is also considerable evidence that the tree can, if given the opportunity, store more than it will use in the next flush and use it throughout the succeeding flushes. Several groves to my knowledge have been fed heavily with ammonia in the fall and carried a good crop through the year without other fertilizer applications.

It would seem, therefore, that we

## THE CITRUS INDUSTRY

can eliminate our June application, moving it forward to, say, the first of May which will give sufficient time for the tree to absorb it if there is sufficient moisture. I prefer to apply it two or three weeks before that. This will enable us to save the loss by leaching so that we need not consider it in our fertilizer program.

Accordingly, if we apply twice the fruit requirements in ammonia, three times the requirements of phosphoric acid and one and one-half times the potash it would seem that we are making doubly sure to care for the crop and the growth as well as to provide for any other contingency.

This would require for our unit tree bearing ten boxes of fruit,

3 lbs. Ammonia,  
1.5 lbs. Phosphoric acid,  
5 lbs. Potash;

or, in terms of fertilizer materials as we can buy them,

12 lbs. Sulphate of Ammonia,  
or  
17 lbs. Nitrate of Soda,  
8 lbs. Acid Phosphate,  
6.5 lbs. Sulphate of Potash,  
43.5 lbs. Total.

At the present prices this would cost 64 cents, while the 70 pounds of so called balanced fertilizer would cost \$1.33 if a portion of organics are used as they usually are.

The phosphoric acid in this program can just as well be applied once a year since it does not leach. What time is best? I am not prepared to say, but I think it makes little difference as far as the tree is concerned. Your pocket book may well be your guide. Some experiments are being made to determine the proper time of application and in a few years we may know. Much the same situation prevails in the matter of potash if you do not insist that it is needed to harden the trees in the fall and do not apply it between, say, May 1st and August 15th, when leaching is most likely to occur.

Someone will come up with the question of reversion of phosphoric acid to the tri-calcic form, but that is an academic matter that need not concern us here, since citrus trees seem to be able to absorb their needs from that form or at least enough is changed to the mono-calcic form to supply all the tree requirements. If this is not the case, then how can the citrus tree use raw ground bone which is so largely used in fertilizer mixtures that has its phosphorus tied up in the tri-calcic form? Common sense would not call for eleven times the needed amount which must largely become reverted if the tree does not use it. Could anything seem more foolish than to move the deep beds of phosphorus from the central part

of the state and attempt to establish a little phosphate mine in every citrus grove in the state? It is too expensive and there are other and better places to put it.

The contention that potash tends to increase the carrying qualities of our citrus is the only reason for applying excessive amounts of that element, but I fail to see the necessity of applying twice the needed amount in a soluble and quickly available form to be sure the tree absorbs enough to accomplish that purpose. Experiments are in progress to determine that matter and no doubt something definite will be available to us soon.

The best time for ammonia applications is a debatable question with good theoretical reasons on all sides.

Let me quote from "The Fundamentals of Fruit Production" by Gardner, Bradford and Hooker. In the case of an apple tree:

"New growth in the early spring is at the expense of stored foods including nitrogen. This reserve supplies the developing shoots, leaves, flowers, rootlets, much of the new tissue in the trunk, branches and roots and the fruit in its initial stages. Hence for good spring growth of tissues, especially shoots, leaves and spurs, abundant nitrogen storage the previous season is a prime requisite."

Cannot this as well apply to a citrus tree? Referring again to the apple tree it has been determined that a seven year old tree stores in its young branches, between the middle of July (when the development of the fruit is nearly finished) and the first of April succeeding (when blooming commences), two and one-half times the amount of nitrogen they contained in July. Is it not equally possible that the citrus tree does the same in its dormant period when the demands for development of its fruit are at a minimum.

It would seem, then, that we could not go far wrong if we applied the heaviest amount of ammonia in the fall when leaching is not generally a factor and when the tree has ample time and is in condition to absorb it. Then in the spring the larger part of the remaining year's requirements might well be applied to set the fruit and to supply the needs for unelaborated nitrogen during the late spring and summer, when leaching is equally improbable; depending still further on the organic matter from the previous year's cover-crop for whatever ammonia the tree may need, if any, during the summer months when bacterial nitrification is prob-

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ably most active.

Some of you will probably contend that this is all theory and will not work out in practice. May I cite my own grove as an example? There are others but I prefer to refer to my own grove because I can speak from an intimate knowledge of it and need not involve any one else. Since the fall of 1925 I have been gradually bringing it into substantially the system suggested based on the reasoning I have outlined, until now it is wholly on this program with little variation except for some check sections and a little under even more radical treatment.

The grove contains 670 bearing trees of which 500 are 18-year old Marsh Seedless grapefruit, and 3400 young Valencias, Pineapple, Tangerine and Marsh Seedless 5 and 6 years old.

The comparative yearly application of fertilizer and the cost for the past five years has been as follows:

1924	43400 lbs. cost	\$ 778.00
1925	62000 " "	1266.00
1926	71600 " "	1447.00
1927	41200 " "	990.00
1928	38300 " "	1101.00

You will note that in 1928 I applied only little more than one-half the tonnage of 1926 while the young trees had increased materially in size and would normally require more feed and have also produced more fruit. The cost you will also note has been reduced several hundred dollars also. Some of the young grapefruit have now over two boxes of mature fruit on them and the entire grove, young and old, has set a very heavy crop this spring.

During the past year the entire grove actually received as applied plant food:

6050 lbs.	Ammonia, all inorganic
1600 lbs.	Phosphoric Acid
300 lbs.	Potash

roughly a 4-1-2 ratio. This amount of food is sufficient to supply the fruit requirements in the case of

Ammonia	20,000 boxes
Phosphoric Acid	32,000 boxes
Potash	10,000 boxes

I have a block of 95 seedling orange trees that have been a source of trouble until I decided to use them as an experiment and kill or cure them. So beginning in the fall of 1925 they have had nothing but sulphate of ammonia and nitrate of soda as plant food, applied four or five times a year. The yearly production has been:

1924-5	None.	
1925-6	130 boxes	68% Sealdsweet
1926-7	None.	
1927-8	69 boxes	65% Sealdsweet
1928-9	301 boxes	60% Sealdsweet

Nothing to boast of, you will agree, but the cost of the plant food has been around 60 cents per year varying with the ton-cost of the materials, so, that there has not been a loss from those trees at least. Incidentally, they have not been plowed, cultivated or sprayed since 1925.

For fifteen months—1927-28—the entire block of 3400 young trees had no plant food applied except inorganic ammonia at a cost of a little more than 9 cents per tree for the period. They appear very vigorous, the crop is satisfactory and the quality of the fruit is unusually good for young trees.

I am convinced that a young grove can be grown and well grown on nothing but inorganic ammonia up to five years of age if at the beginning about 400 pounds of acid phosphate per acre is applied to encourage the growth of some legume like crotonaria.

Much discussion pro and con regarding cultivation has been had, especially during the past year. It is an important matter and if a large part of the cultivation usually practiced can be eliminated a very material saving will be effected. Why in the world is it considered necessary to plow or cultivate out all the fine feeding roots in the top of the ground that the tree has made such an effort to develop during the summer for its feeding system? It not only disturbs the balance of the tree but it destroys fully one-half of the means the tree has to reach the major portion of the available phosphoric acid, potash and organic matter that has been found to lie in the top nine inches of our soil. Some say that we need to cultivate in order to encourage bacterial action but the fact is that bacterial action is too rapid in our porous sand soils and burns up the organic matter which we have been at such pains to produce.

In the growing of grains and grasses a compact top soil is essential for the seeds to germinate and to give sufficient contact between the rootlets and the soil so that the young seedling can secure sufficient moisture and food. By continued cultivation the top soil is kept so loose and dry that the seeds that have not been covered too deeply to germinate die from lack of moisture as soon as they germinate. This will account for the many groves with sparse cover crops in the summer. There are only two good reasons for cultivation,—conservation of moisture and fire hazard. In neither case is continued cultivation after the cover crop has been killed an economic advantage. Conservation of moisture can be cared for by other means than cultivation but fire hazard is a real problem that must be solved according to individual conditions. If your aesthetic sense demands a clean sandy waste dotted here and there with green citrus trees, no fault can be found except to question your economic business sense. There are portions of

my grove that have not been harrowed or plowed for over three years, others not for two years, and other portions that are harrowed once or twice to care for the fire hazard. To my eye there is no material difference in the appearance of the grove or the set of fruit. Perhaps the quality of the fruit in the unworked portions is somewhat the better. In any case I am unable to see the least necessity for spending the money to work the grove since there is no apparent advantage. I am sure there will be an apparent advantage in the unworked portions as the supply of organic matter accumulates on the top of the soil in a good deep mulch. Of course it is perfectly apparent that non-cultivation or a marked reduction in cultivation will save a good proportion of our operating costs. If there is no very apparent advantage in one method over the other, good business sense would dictate the cheaper method.

The matter of spraying seems to sum up like this—if you have sprayed you wish you hadn't, and if you have not you wish you had. Too many grove owners act on the same principle as the man who took a bath once a year whether he needed it or not. There are groves in this vicinity as free from scale as their neighbors; which have not been sprayed for years and in which the scale and parasites seem to have reached a balance. If such a condition can be attained why upset it by a so-called cleanup spray in the early winter? The white fly can be more effectively and cheaply controlled by the yearly application of fungus than by spraying.

I am impelled to touch on one other matter of great importance to us. Practically all the large industries of the present day are maintaining groups of trained scientists working and experimenting in the realm of pure science as well as in the particular problems of each industry. Theirs is the task to determine scientific facts. It is then the task of trained business executives to interpret these facts and put them to profitable use. Do you realize that the agricultural industry is one of the pioneers in establishing such a group of specially trained scientists working for us in each state on our special problems? They are our hired men and are doing wonderful work in finding facts for us to use in our business if we will but have the sense to keep in touch with their work and put it to our own profitable use. It is our business as good grove executives to analyze and interpret these facts according to our particular needs.

## Citrus Packing Machinery Shipped to Palestine

The Florida Citrus Machinery Co., of Dunedin, shipped recently from New York a complete citrus packing plant consigned to the Pardess Association, Joppa, Palestine.

It will be recalled that early in the year the Pardess Association, which is the Citrus Exchange of Palestine, invited Mr. B. C. Skinner, President of the Florida Citrus Machinery Co., to visit Palestine to look over their packing problems and make recommendations.

Mr. Skinner made the trip and found all packing operations were done by manual labor. Polishing the fruit, sorting it into grades, sizing it, packing the boxes and handling about the packing sheds all were done by men and women. While labor in Palestine is cheap and some of it quite skilled in their hand methods, The Pardess Association hoped by mechanical means to speed up production, improve the appearance of their pack and at the same time materially reduce their unit of cost.

The conditions in Palestine Mr. Skinner found to be quite different from those that obtain in most citrus growing countries. The Palestine orange is the Mediterranean type which is oblong in shape being about 20% longer than its shortest diameter. The standard machines used for round and flat fruit would not do. The sizer sometimes sized by the shortest diameter and sometimes by the longest. The problem was to design a sizer that would size by one diameter only.

Upon Mr. Skinner's return dummy oranges were made of wood and the work of designing and building a special sizer for the job was begun. The machine finally built will carry these oblong oranges in such a way that they are sized by the shortest diameter.

The outfit is what is known in Florida as a two-car plant all with individual motor drive but does not include washer or dryer. These two machines are not needed as Palestine fruit does not require washing. Their arid climate makes it impossible for such pests as the red spider, rust mite, white fly, etc., to exist and therefore no spraying is done and fruit comes from the tree clean and bright without stains or blemishes of any kind.

Palestine markets about a million boxes of oranges every year. The choicest of this fruit is shipped to the

English markets. The orange is of excellent flavor, very sweet and juicy, of a rich bright color and generally brings a fancy price.

Mr. M. B. Crum, an experienced packing house man, has been sent over to install the equipment and instruct the owners in its operation.

### STATION LIBRARY GIVEN SERIES BOOKS ON FUNGI

A gift of a collection of 18 volumes on Fungi, to the Library of the Florida Agricultural Experiment Station has just been announced by Mrs. Ida Keeling Cresap, librarian. The donor was Mr. M. B. Punnett of West Palm Beach, Fla. Mr. Punnett decid-

ed to give the books to an institution that would have a definite need for such material and as a result of his generosity the collection is now available in the Library.

The gift of these valuable books is greatly appreciated by the staff of the Station, Mrs. Cresap said.

### BUY SEVEN PUREBRED BULLS

Tallahassee, Fla.—Seven purebred bulls were brought by farmers in Leon County during October, in cooperation with G. C. Hodge, county agent.

### FARMERS PLANT LEGUMES

Marianna, Fla. — Over 25,000 pounds of winter legume cover crop seed have been planted in Jackson County this fall, Sam H. Roundtree, county agent, announced.

## Florida Orange Festival

JANUARY 21, 22, 23, 24, 25

WINTER HAVEN, FLORIDA

The value of the Florida Orange Festival in advertising the citrus industry is inestimable. More and more citrus men, business leaders and the general public are coming to realize this. The attendance of more than 50,000 at the 1929 Festival is conclusive evidence of the standing the Florida Orange Festival enjoys among southern fairs. Its value to the advertiser is incalculable.

200 booths comprise the four large exhibition halls of the Festival. Prizes for booth space range from \$30 upwards to \$75 for commercial space. Rates will be furnished on application to the general manager, J. B. Guthrie, at Orange Festival Headquarters, Chamber of Commerce Building, Winter Haven.

The Festival will comprise five days of notable programs—free acts, citrus exhibits, street parade, queen contest, awarding of citrus and other prizes, growers' day, tourists day, and many other features.

### CITRUS EXHIBITS FROM ALL FLORIDA

## HOTEL HILLSBORO

Tampa, Fla.

TOP O' THE TOWN

European Plan, Fireproof 300 Rooms With Baths

THE CENTER OF TAMPA

"Please Say You Saw It In The Citrus Industry"

# Satsuma Festival A Great Success

By Alton Boyd

The Satsuma Orange Festival held at Marianna on November 14, 15 and 16, attended by throngs estimated over 60,000, is considered one of the most successful exhibitions of West Florida products to be held this season. Not only the satsuma orange and the possibilities of its extensive cultivation was brought before the attention of the crowds, but also the many other products successfully grown along commercial lines in West Florida, such as pecans, various fruits, peanuts, corn and many other money-producing crops.

This was the second festival, the first being held in Marianna also about the same time in 1928. The previous festival was more of an experiment, to test the success of an annual exhibit of this sort, and was conducted under the auspices of the Marianna Floridan. The overwhelming success of the first festival proved the value of such an event that it was again held this year. The various civic clubs of Marianna sponsored the festival this year.

The well-balanced program of the occasion did not leave a dull moment. Speakers on the program during the three-day period included such well-known persons as John W. Martin, former governor of Florida; Hon. Tom A. Yon, congressman from this district; Nathan Mayo, state commissioner of agriculture and Dr. J. V. Knapp, state veterinarian.

During these addresses these men all commended the work of West Florida farmers and growers, yet at the same time pointing out the possibilities and advantages of a more diversified system of agriculture.

"Because of the wide range of possibilities which you have here, this is one of the safest and most dependable farming sections of the whole country, and it might well become the 'storehouse of Florida'" said Mr. Mayo.

The entertainment end of the program was well provided for. A well-known amusement company brought their outfit to Marianna and pleasure seekers were given ample opportunities to enjoy themselves in the large midway. Riding devices, heretofore never brought to this section, were part of this outfit and much comment was made upon the clean amusement furnished by this concern. Spectacular free acts in the morning and afternoon kept the

crowds in good spirits.

From every angle, the Satsuma Orange Festival was a complete success and will be hereafter looked forward to each year with much interest. There are few events during the year that will compare with this occasion in giving favorable publicity to North and West Florida.

The insect chorus: "God bless Mr. Careless Farmer for leaving his fence rows in weeds."

## C. D. Kime

Consulting  
Horticulturist

Grove Advisory Service,  
Soil Investigations,  
Research.

P. O. Box 222  
Phone 3489  
ORLANDO

In writing advertisers please mention The Citrus Industry.

## Ripen, color, blanch with ETHYLENE

*Increases profits—Saves time—Reduces losses*



*Inexpensive*

*Easy to use*

### All these advantages

1. Greatly reduces time required for ripening.
2. Prevents waste from rots and fungous growths.
3. Improves flavor.
4. Produces better color by more complete action on the green pigments.
5. Ripening and coloring go on simultaneously.
6. Makes possible the marketing of heretofore unknown tropical fruits.
7. Ripens and colors fruits and vegetables that mature late in the season.
8. Is inexpensive and easily used. Simple apparatus and little experience required.
9. Can be applied equally well to a few crates or a whole carload of fruit or vegetables.
10. Is neither injurious nor dangerous. Widely used. A proved success.

*For information write to*

**CARBIDE AND CARBON CHEMICALS CORPORATION**  
30 East 42nd St., New York City

P. O. Box 596, Los Angeles, Calif.; 114 Sansome St., San Francisco, Calif.

*Warehouses in Tampa, Jacksonville, Los Angeles and other principal cities*

Unit of Union Carbide **UCC** and Carbon Corporation



## Proposed Definitions of Foods Announced

Tentative definitions of fruit juice, grape juice, and orange juice were drawn up by The Food Standards Committee at a recent meeting of the committee in Washington, announces W. S. Frisbie of the Food, Drug, and Insecticide Administration, U. S. Department of Agriculture, chairman of the committee. Criticisms and suggestions regarding the proposed definitions and standards are now invited from food officials, consumers, the trade, and all other interested parties.

The definitions proposed are as follows:

**FRUIT JUICES** are the clean, unfermented juices obtained from the first pressing of sound, mature, fresh fruits, or of their pulp, and correspond in name to the fruit from which they are obtained.

**GRAPE JUICE** is the unfermented, expressed juice of clean, sound, mature grapes. It is made by a single pressing of the fruit, with or without the aid of heat, and with or without the removal of insoluble matter.

**ORANGE JUICE** is the clean, unfermented juice, with or without portions of the pulp, obtained from the sound, mature fruit of the orange *Citrus sinensis*,

(a) by roaming or burring the cut fruit,

(b) by pressing the pulp after removal of the peel, or

(c) by pressing the whole fruit with subsequent removal of oil derived from the peel.

Communications regarding these proposed definitions should be ad-

dressed to A. S. Mitchell, secretary, Food Standards Committee, Food, Drug, and Insecticide Administration, Department of Agriculture, Washington, D. C., to reach him not later than February 1.

### OUR FOREIGN MARKET FOR GRAPEFRUIT

Continued from page 5  
stronger than export.

And so, gentlemen, I leave you this thought: With a present distribution period of six months and consumption of sixteen million boxes, if

you increase the distribution to nine months, and even maintain your present per capita average, the domestic consumption should become 24 million, and to this, there is good reason to hope, may be added a direct export movement running between one and three million boxes. In such a total lies salvation to the Florida citrus industry, as well as a most attractive tonnage through the ports of Tampa and Jacksonville, provided the latter city builds a ship-side assembly plant assuring modern cold storage preservation, combined with mechanical ship-loading — two features your port must provide if its services are to merit export consideration.

**Growers realize more money  
for the same fruit when it**

## KEEPS BETTER

Citrus fruit that has been pre-cooled and iced will generally arrive sound but to keep it that way long enough for the dealer and consumer to dispose of it before some of it spoils is quite another matter. Thousands of dollars are lost every year in this way. These losses used to be taken as a matter of course—one of the hazards of citrus fruit.

But if the fruit has been Brogdexed, the control treatment of Brogdex takes up the burden of protection where pre-cooling and refrigeration leave off and carries the fruit through the dealer's and consumer's hands without appreciable loss to either.

Buyers like to get this better fruit—it builds confidence and establishes a demand. They know the reason for its better keeping qualities and that reason is Brogdex, a patented process by the use of which the packer sterilizes the fruit to control decay and rot and then waxes it to retard shrinkage, aging and wilt.

An investigation of the Brogdex System and the results Florida packers are getting from its use will convince any man with an open mind that more money for the same fruit is just a question of making it look better and keep better.

Write for our Brogdex Booklet, "The Story of Two Grapefruit"—it is told largely in pictures.

**Florida Brogdex Distributors, Inc.**

B. C. Skinner, Pres.

Dunedin, Florida

**ORANGE COUNTY, Florida**



**Orange and Grapefruit  
Capital of Florida**

**O**RANGE, county seat of Orange County, is the largest marketing point for oranges and grapefruit in Florida. Last year this county alone shipped 8,384 carloads of oranges, grapefruit and tangerines yielding to growers and shippers more than \$7,000,000. Numerous tracts of orange and grapefruit land available here at reasonable prices. Also land adapted to truck farming, poultry raising, etc. Delightful year-round climate. Rolling hills, hundreds of lakes. For booklet, address Orange County Chamber of Commerce, 617 State Bank Bldg., Orlando, Florida.

"Please Say You Saw It in The Citrus Industry"

# FRUIT COLOR IMPORTANT FACTOR IN MAKING SALES

Color has been found to be the most important single quality factor in the sale of American fruit, according to F. G. Robb of the Bureau of Agricultural Economics, U. S. Department of Agriculture, citing the results of twelve years of farm products inspection service by the Federal bureau. Other quality factors include size, maturity, and defects due to insect injury, disease, improper packing and rough handling.

Although there has been a marked improvement in recent years in the quality and condition of American fruits on domestic markets, there is still too large a quantity of poor products which have a depressing effect on the general level of fruit prices, Mr. Robb says. The poor quality and condition of this fruit is the result of inefficiency in growing, harvesting, packing and shipping.

"Color," Mr. Robb declares, "is a difficult factor to judge. In a variety of apples like the Jonathan, for example, the U. S. No. 1 grade calls for 25 per cent of good color. The color on the fruit may vary from faint stripes to deep solid red; it may be scattered all over the surface or be concentrated on one cheek. When the apples are passing rather rapidly in front of the sorters it is likely that an occasional under-colored apple will get by or be misjudged, but there is a grade tolerance to take care of such errors. However, when the inspector finds 20, 25, or 30 per cent of fruit which shows practically no color in some barrels while others show practically no under-colored fruit, it can not be excused as misjudgment or border line cases. It shows careless packing house management. Under-colored apples can not be forced on the market at No. 1 prices.

"Inspectors frequently find the same evidence of carelessness in sizing of fruit as in judging color. Sizing can be done satisfactorily only by machinery. The most common condition defects in apples found by our inspectors are over-maturity, decay, scald, and freezing injury. Over-maturity may result from allowing the fruit to remain too long on the trees, or from improper storage, or transportation temperatures.

"Blue mold rot is the most common type of decay. It result from punctures, bruises, or other skin breaks. The great variation in percentages of this decay in different lots in the latter part of the season shows the difference between proper

## THE CITRUS INDUSTRY

and improper handling methods. At this time of year there is also a wide variation in the extent of damage from scald. Oil wraps in boxes and shredded oil paper in barrels and baskets prevent this condition, but the paper must be scattered through the package if the treatment is to be effective.

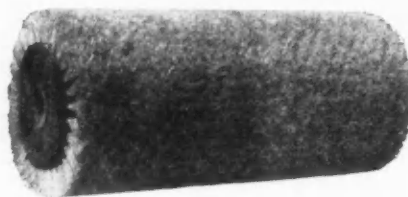
"Tightness or slackness of pack are causes of loss, especially in connection with barrels. A slack pack or the crushing of apples just beneath

the head of the barrel can be avoided by proper racking or shaking down of the barrel as it is being filled."

## LOANS MADE TO GROWERS

Approximately \$75,000 has been loaned to Palm Beach County growers by the Federal Farm Board, M. U. Mounts, county agent stated.

# BRUSHES



The holiday shut down is a good time to renew your washer brushes. We carry in stock both the solid block cylindrical brushes and the old style flat bar brushes.

We will make you this special "trade-in" offer if you need new brushes for your old style Skinner washer: Send us your old bar brush shafts, end castings, middle bearings and octagons just as they come out of your washer. We will mount the new style solid block cylindrical brushes on your old shafts and return to you ready to slip into your machine for just what it will cost you for a new set of bar brushes.

The solid block brush has 20% more fibre in it, is perfectly round and fruit hugs the surface the full length of the brush. Rub boards can be set closer and a certain amount of pressure applied if fruit is unusually dirty. Fruit comes out much cleaner and a better looking pack is made possible.

Bar brushes spring and give, get out of alignment, sometimes break and fly out, and in other ways give trouble. Rub boards cannot be set close and tangerines and weak fruit will be frequently pinched under the rub boards. You eliminate all of these troubles when you use the new type brush.



Skinner New  
All-Steel  
Washer

## Florida Citrus Machinery Company

Division Food Machinery Corporation

B. C. Skinner, Pres.

Dunedin, Florida

# AGRICULTURE TRADE WITH PORTO RICO SHOWS INCREASE

In the last ten years the value of agricultural shipments from Porto Rico to the United States has averaged about \$91,000,000 a year, as compared with an average of approximately \$62,500,000 during the period 1915 to 1919, and an average of \$37,000,000 in the years 1910 to 1914, according to the Bureau of Agricultural Economics, U. S. Department of Agriculture.

Exports of agricultural products to Porto Rico from the United States have shown corresponding increases, having averaged in value about \$80,000,000 a year the last ten years, as compared with \$47,000,000 in the period 1915 to 1919, and \$33,000,000 a year from 1910 to 1914. Sugar and tobacco predominate in the island shipments to the United States, whereas rice is the leading item of agricultural purchases.

The hurricane last year caused a reduction in shipments from the island as compared with the preceding year, but this is regarded as only a temporary setback to a steadily increasing trade. The bureau points out that the agricultural expansion in Porto Rico began shortly after the American occupation of the island. In the case of sugar, shipments to the United States in the calendar year 1928 amounted to 605,000 short tons, whereas in the year ended June 30, 1901, sugar shipments amounted to 69,000 short tons.

## LAKE COUNTY FARMERS VISIT CITRUS STATION

Forty growers from Lake County with C. R. Hiatt, county agent, visited the Citrus Experiment Station here recently. J. H. Jefferies, superintendent of the Citrus Station, and Dr. R. W. Ruprecht, chemist at the Florida Experiment Station in Gainesville, met with the group and explained the fertilizer and cover crop test for which the Station is becoming popular.

The county agent announced that another tour would be made here from Lake County soon.

## FORM DIPPING ASSOCIATION

Bunnell, Fla.—Farmers in Flagler County, cooperating with L. T. Neiland, county agent, are forming local group associations and dipping their cattle in advance of the Government tick eradication campaign.

# Buy Some Tons of EXTRA PROFIT This Year

**S**TART off the New Year by resolving to make more money from your groves. Extra dollars come in Chilean Nitrate of Soda bags because this natural nitrate so invigorates your trees that they produce a much greater yield of fruit.

Chilean Nitrate will give an extra heavy early bloom and set a large crop. It will tone up your trees and keep them in the pink of condition.

Chilean Nitrate is not synthetic. It is the good old "Soda" that more than 800,000 American farmers used last year to make better crops. It pays a fine profit on citrus and other fruit trees, on truck, corn, grain and cotton. Try it this year. Now is the best time to buy it.

## FREE Book For You

Our new 44-page book, "How to Fertilize Your Crops", is filled with valuable crop facts. It is free. Ask for book No. 1, or tear out this ad and mail it with your name and address written on the margin.

1830-1930—This year marks the 100th anniversary of the first cargo of Chilean Nitrate brought to the United States.

# Chilean Nitrate of Soda EDUCATIONAL BUREAU



Orlando Bank & Trust Bldg.  
Orlando, Florida

In writing please refer to ad No. 25-G



**BRAZILIAN ORANGE INDUSTRY**

Continued from page 8

Espirito Santo	400,000
Minas Geraes	1,465,000
Matto Grosso	143,000
Rio Grande do Sul	1,000,000
Various (other)	200,000

Total	15,359,000
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In connection with the above article, the following statements from the Daily Bulletin of the Ministry of Foreign Affairs, Rio de Janeiro, Brazil, forwarded to the Department of Commerce by Mr. Carlton Jackson, American Commercial Attache, Rio de Janeiro, Brazil, under date of September 13, 1929, may prove of interest:

"The Brazilian Consulate at London now informs that in compliance with instructions issued by the Brazilian government, that Consulate has employed every effort in connection with the marketing of fruit arriving there from Brazilian ports. From observations made of the refrigeration methods used by Brazilian exporters, it has been concluded that the deterioration of the fruit is a result of the dampness produced by ammonia refrigeration, which should be substituted by the cold air process, this being the most urgent problem to be resolved by interested parties. Once this part of the matter were properly settled, the Consulate opines that the next step would be the appointment of a capable individual charged with the technical side of

the matter, who would proceed to California or South Africa to make studies of the fruit trade, from the unloading of the fruit to its placing in consuming markets, having in view the degree of perfection to which this momentous and important trade has already been raised. A far reaching step would also be, in the Consulate's opinion, the appointment of a representative, by the Exporters' Syndicate, who would go to London for the purpose of inspecting sales, in order to avoid at the opportune moment the sacrificing of prices due to the immediate sale of the fruit at auction. By the warehousing in refrigerators at the rate of 10 pence (20 cents) a box per month, until the time when an increase in demand

would guarantee the sale at higher prices."

A later Bulletin of the Ministry of Agriculture (Brazil), forwarded by Mr. Jackson, under the date of September 19, 1929, in discussing the Brazilian orange-export season to the United Kingdom, running from April to November, states:

"General opinion is that, stimulated by the high prices obtained last year (1928), many Brazilian firms entered that (British) market this year without being properly equipped for the purpose. Importers (British) are of the opinion that as long as Brazilian oranges are not offered for sale under the same conditions as those coming from California and South Africa, this trade cannot bring



**RESULTS** shown by NitraPo when substituted for the usual application of mixed fertilizers in the early Spring, are largely responsible

for the growing popularity of the practice of using all minerals as a source of nitrogen in the Spring Application for citrus groves.

The Ammonia in NitraPo is in a quick acting form which, when applied to the trees in the early Spring, forces and sticks an early bloom and insures uninterrupted growth.

The Potash in NitraPo balances a feeding of this quick acting nitrate nitrogen by hardening the tissues and fibres of the new growth and greatly reduces the damage done by Aphids and the tendency of the trees to produce spurts of angular wood.

If you have not had previous experience with this practice, we would like to send you our booklet "The NACO PLAN" which explains in an interesting manner the practical economy of using this plan for grove fertilization and the results which may be expected from its adoption.

Ask for our Price List No. 23 when you write for the booklet "The NACO PLAN"

**For White Fly and Sooty Mould**

Clean your trees of White Fly and Sooty Mould with a thoro application of VOLCK. It will also clean up any scale that may have survived thru the summer. Talk with your nearest dealer.

**CALIFORNIA SPRAY CHEMICAL COMPANY**  
O. R. Blois, District Sales Mgr.  
61 W. Jefferson St., Orlando, Fla.

**VOLCK**

*The Scientific Insecticide*

**NITRATE AGENCIES**

**COMPANY**

1401-1405 LYNCH BUILDING JACKSONVILLE FLORIDA

any profit to Brazil. Purchasers complain that Brazilian oranges, even those arriving in good condition, have little resistance and deteriorate rapidly."

In reports to the Department of Commerce during the past British import season for Brazilian oranges, which closed around November 15, 1929, Mr. James Somerville, Jr., American Trade Commissioner, London, England, states that while many Brazilian oranges of good quality were arriving in the United Kingdom, their condition in general was such, and their prices so much lower, that they were really not competing directly with United States oranges.

In a further report, Mr. Somerville comments upon the arrival of Chilean oranges in the United Kingdom, stating that in early September, 1929, the first shipment of oranges ever made from Chile to the United Kingdom was sold at auction in Liverpool. The consignment consisted of 100 boxes, ranging from 76 to 150 oranges to the box. Although some of the oranges were of good quality, the prices realized were disappointing in view of the abnormally large supplies offered for sale from other countries.

In another report, Mr. Somerville discusses arrivals of Paraguayan oranges in Liverpool in early September, 1929. Members of the Liverpool fruit trade state that the Paraguayan oranges were more or less "limb-marked" and of unattractive appearance. Also, the oranges arrived in very poor condition. Prices received ranged from 4 shillings 6 pence (approximately \$1.08) to 6 shillings 3 pence (approximately \$1.50) a box.

Mr. Somerville adds that trade reports indicate only one consignment of Paraguayan oranges to the London market, the fruit arriving in very poor condition. The quality of the oranges was good and they were packed like Argentine oranges.

#### JAP PERSIMMONS CAN BE GRAFTED ON WILD STOCK

Japanese persimmons may be grafted or budded on the native wild persimmon, says Harold Mowry, assistant horticulturist at the Experiment Station. Grafting gives better results than budding as a usual thing.

January is perhaps the best time to do this grafting, although it may be done any time during the dormant season. An ordinary whip graft should be used on small stock, or a cleft graft used on larger stock. When the whip graft is used it is ordinarily placed just at the soil surface.

## QUALITY OUTWEIGHS QUANTITY!

A glance at the market reports of any days sales will disclose the wide range in fruit prices—showing that an average crop of quality fruit is much more profitable than one of poor quality, regardless of quantity.

It has been and will continue to be the policy of this Company to assist the Growers in every way possible to produce maximum crops of Quality Fruit. We believe we have been successful in doing this for many; the same service is available to you.

Write us and we will be glad to have one of our trained field men call on you. It will not obligate you in any way, and may be the means of adding many dollars to your next season's returns.

There IS A Difference  
In Fertilizer

LYONS FERTILIZER CO.  
Tampa Florida



OFFICE  
805 Citrus Exch. Bldg.

PLANT  
35th St. and 4th Ave

"QUALITY FERTILIZER FOR QUALITY FRUIT"

# RESEARCH IN PLANT INDUSTRIES COVERS WIDE RANGE OF INTERESTS

Continued from page 10

resulted in the collection of 176 varieties of sugar cane. Cuttings have been planted in the quarantine greenhouses at Washington. More than 100 of these varieties, which were selected for disease resistance, survived the long trip to Washington and are now in good growing condition.

Continuing its work with soybeans, the bureau now has a specialist visiting China and Japan to study the methods of oil production and to procure seed of promising new varieties. Already about 2,000 introductions of soybeans have been made, representing some 500 distinct varieties.

Pasture grass experiments in the South gave encouraging results last year. At Gainesville, Florida, it was found that one acre of improved pasture was sufficient to carry one steer through the grazing season. The steers made an average gain of 1.24 pounds a day and made a profit above labor and fertilizer costs of \$7.82 per acre or per steer.

During the past year a spray solution has been developed which gives promise of controlling bacterial spot of peaches. This spray contains zinc sulphate and lime, and, so far as known, is the first spray to give direct control of a bacterial disease of plants. Investigations looking to the utilization of surplus peaches indicate that the quality of the canned fruit can be much improved.

The status of chlorine as an ingredient of tobacco fertilizers has been changed somewhat as a result of recent work of the Bureau of Plant Industry. For several years it was thought that the presence of this element, even in minute quantities, was detrimental to the quality of tobacco. Now it has been shown that small quantities of chlorine actually improve the burning quality of the leaves. Large amounts of this element are still regarded as harmful.

The production of fruits and other perishable products from freezing in transit during cold weather is another phase of the fruit industry which is receiving attention from the department. It has been found that small heaters placed in the cars will warm the air sufficiently, which is then kept circulating by electrically-driven fans.

Numerous other topics of interest to a wide range of plant industries are discussed in the report. A list of several hundred publications issued by bureau specialists is included in

## THE CITRUS INDUSTRY

the report and serves to give a more comprehensive idea of the scope of the bureau's researches during the year.

### FUDGE TO BEGIN DISEASE WORK AT CITRUS STATION

The appointment of Dr. B. R. Fudge as assistant chemist at the Citrus Experiment Station at Lake Alfred is announced by Dr. R. W. Ruprecht, Station chemist. He will investigate dieback and chlorosis of citrus, principally.

Dr. Fudge, who is a graduate of Clemson College, S. C., and Rutgers University, N. J., succeeds Dr. J. Franklin Fudge, who resigned recently. The two are no relation.

## CLASSIFIED

### Advertisements

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

#### REAL ESTATE

**FOR SALE**—By owner, eighty acres, two-year-old best looking grove at reasonable price. Howey-in-the-Hills. For further information write "A. Z." P. O. Box 1261, Orlando, Florida.

**WILL EXCHANGE** West Texas cattle ranch for unimproved or improved land in Florida. What have you? Give price and full particulars. T. E. Bartlett, 3410 McKinley Ave., El Paso, Texas.

**FOR SALE**—Pineapple land in winterless Florida. \$15 an acre. Almont Ake, Venus, Fla.

**WANT TO SELL HALF INTEREST IN FIFTEEN ACRE SATSUMA BEARING GROVE ON HIGHWAY NEAR PANAMA CITY, ROBT. LAMBERT, OWNER. FOUNTAIN, FLA.**

**SATSUMA BUDWOOD** from Bearing Trees. Hills Fruit Farm, Panama City, Fla.

**WANT TO hear** from owner having farm for sale; give particulars and lowest price. John J. Black, Box 93, Chippewa Falls, Wisconsin.

#### MISCELLANEOUS

**RUNNER** peanuts—Spanish peanuts Early speckled - Osceola - White Chinese and Bunch Velvet Beans. All varieties peas and Soybeans. Large or small lots. H. M. Franklin, Tennesse, Georgia.

**FOR SALE**: Splendid bearing citrus grove in Lee County, far removed from Fruit Fly infestation. Will produce 20,000 boxes coming season. If you want this grove address P. O. Box 295, Fort Myers, Fla.

**NINETY DAY VELVET BEANS**, Late Speckled Velvet Beans, Bunch Velvet Beans, Crotalaria Seed, latest crop, re-

cleaned, best quality seed. Very attractive prices for immediate shipment to close out this stock. Stocks limited. E. A. Martin Seed Co., Established 1875. 202-206 E. Bay St., Jacksonville, Fla.

**HIGH BLOOD PRESSURE** easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Fla.

**WHITE WYANDOTT** Cockerels, regal strain—the best in the country, direct from Martin pens. Utility and show birds \$5.00 each; also eggs for hatching \$5.00 per 15. W. A. King, Gen. Del., St. Petersburg, Fla.

### WANTED COMPLETE LINE OF CITRUS GROWERS' SUPPLIES

A well known reputable firm of national scope, marketing certain materials required by citrus growers, is extending its line of merchandise to cover complete requirements of its customers.

If you have something excellent to merchandise—fertilizer, orchard heaters, pest control material or equipment, or any similar product for wide distribution—I can tell you whom you should see.

Address: J. T. Pierson, 503 South Union Drive, Los Angeles, Calif.

**BEGGARWEED SEED**. Place your order for Beggarweed seed now and be assured of delivery. Write for special prices. Wm. G. Ranney, Box 297, Monticello, Fla.

**PUREBRED PULLETS FOR SALE**—White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Several hundred yearling White Leghorn hens now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

**LAREDO SOY BEANS**, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

**FARMER AGENTS**: Make \$25.00 weekly selling Comet Sprayers. Profitable winter employment. You take orders. We deliver and collect. Commissions weekly. Established 35 years. Particulars free. Rusler Co., Box C-18, Johnstown, Ohio.

**FOR SALE**—Dairy and stable manure, car lots. Link & Bagley, Box 464, Tampa, Fla.

**AVOCADOS - SEED** — Grafted. Reliable bearers only. John B. Beach, West Palm Beach, Florida.

**BABY CHICKS**: Send no money, shipped C. O. D., pay mail man when delivered. Leghorns \$14.00 per 100; reds, orpingtons, minors \$16.00; mixed \$18.00; live delivery, postpaid, Florida Baby Chickery, Lakeland, Florida.

**WANTED**—To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

## Orders-Inquiries



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